

	A R L I NG TO N VIRGI NIA
	DEPARTMENT OF ENVIRONMENTAL SERVICES Facilities & Engineering Division Engineering Bureau 2100 Clarendon Boulevard, Suite 813 Arlington, VA 22201 Phone: 703.228.3629
	Fax: 703.228.3606 Kimley-Horn Kimley-Horn and Associates, Inc. Cyzczi kikkEY-HORN AND ASSOCIATES, NC. 11400 Commerce Park Drive, Suite 400 Revisions Fax: 703.228.3606
ARLINGTON COUNTY,	Filename: 010073-A-LAND-DTL.dwg K:NNA_RDWY!10010073 columbia pike multimodalproduction'task Path: 7.5 final design of columbia pike segments/segment a/7.5.1 - 75% design/plansheets Plotted: October 28, 2021 Plotted by: Patrick.Husted VIRGINIA
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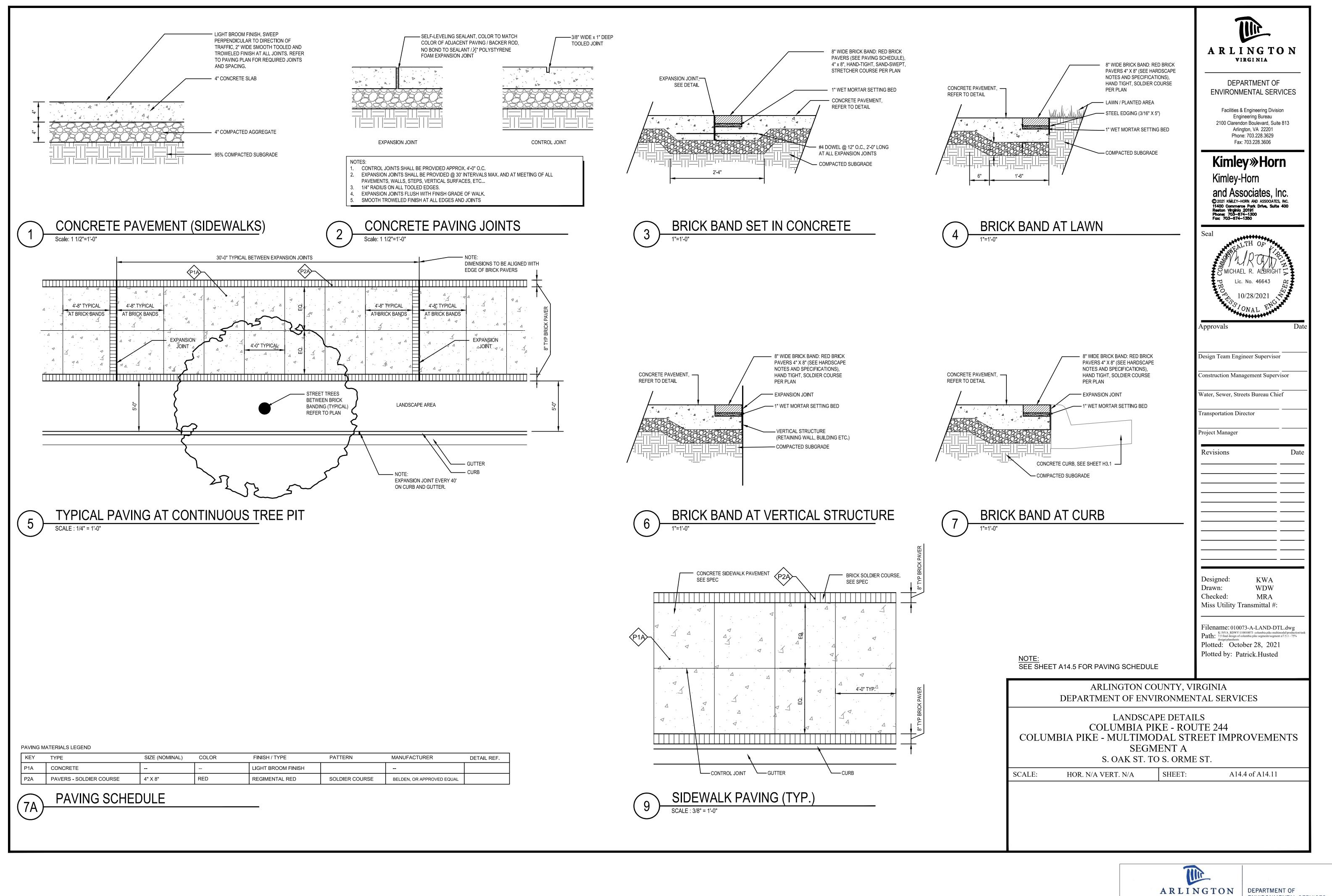
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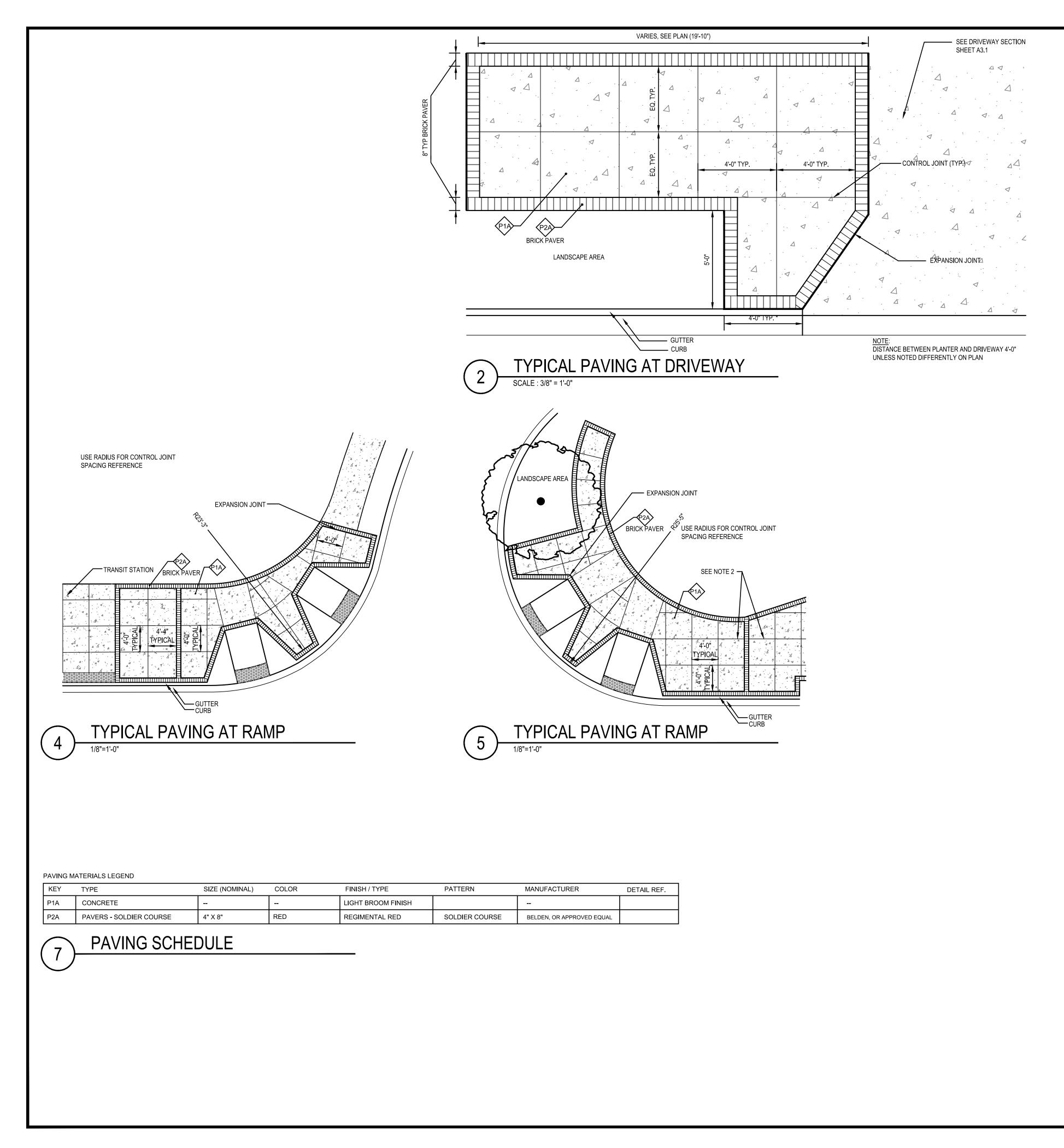


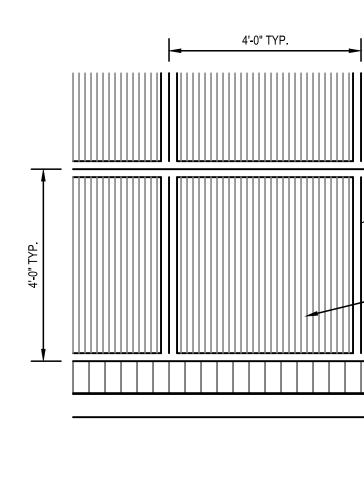
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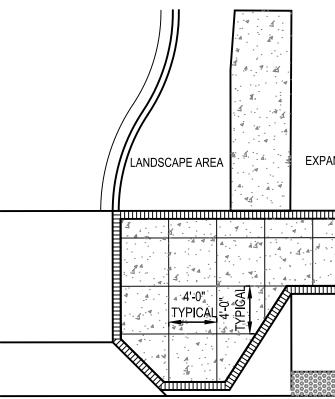
11/23/2021 APPROVAL DATE

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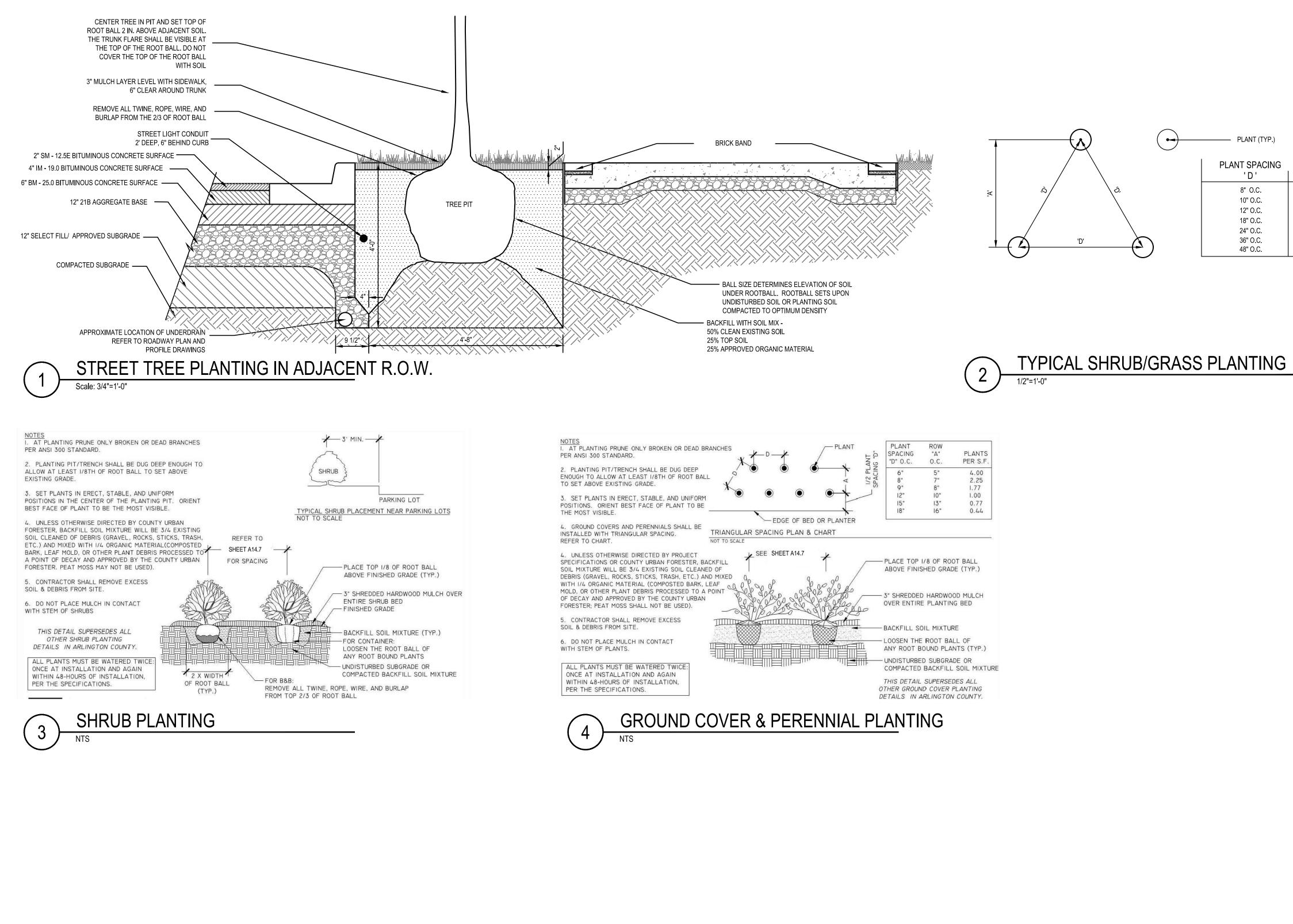
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- 1. CONTROL JOINTS BETWEEN RAMPS TO BE OFFS BACK OF CURB RADIUS
- 2. CONTROL JOINTS TO MATCH FROM PREVIOUS

		A R L I N G T O N VIRGI NIA
4'-0" TYP.	CONTROL JOINT TYP.	DEPARTMENT OF ENVIRONMENTAL SERVICES
	2" TOOLING AT EACH SIDE OF CONTROL JOINTS, TYP.	Facilities & Engineering Division Engineering Bureau 2100 Clarendon Boulevard, Suite 813 Arlington, VA 22201 Phone: 703.228.3629 Fax: 703.228.3606
	BROOM FINISH (ALIGNED WITH GRID PATTERN APPROXIMATELY PERPENDICULAR TO BACK OF CURB BRICK BANDING TOP OF CURB	Kimley-Horn Kimley-Horn and Associates, Inc. 11400 commerce Park Drive, Suite 400 Reston Virginia 20191 Phone: 703–674–1300 Fax: 703–674–1350
TYPICAL TOOLING DETAIL 1/2"=1'-0"		Seal WICHAEL R. ALBRIGHT DU Lic. No. 46643 STONAL
		Approvals Date Design Team Engineer Supervisor
LANDSCAPE AREA		Water, Sewer, Streets Bureau Chief Transportation Director
		Project Manager Revisions Date
	GUTTER CURB	
TYPICAL PAVING AT RAMP		
		Designed: KWA Drawn: WDW Checked: MRA Miss Utility Transmittal #:
ROL JOINTS BETWEEN RAMPS TO BE OFFSET FROM OF CURB RADIUS ROL JOINTS TO MATCH FROM PREVIOUS SEGMENTS		Filename: 010073-A-LAND-DTL.dwg K:NVA.RDWY110010073 columbia pike multimodal/production/task Path: 7.5 final design of columbia pike segments/segment a/7.5.1 - 75% design/plansheets Plotted: October 28, 2021 Plotted by: Patrick.Husted
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		DEPARTMENT OF ENVIRONMENTAL SERVICES
ROW 'A'		Facilities & Engineering Division Engineering Bureau 2100 Clarendon Boulevard, Suite 813 Arlington, VA 22201 Phone: 703.228.3629 Fax: 703.228.3606
.93" O.C. .66" O.C. 0.4" O.C. 5.6" O.C. 0.8" O.C. 0.0" O.C. 1.5" O.C.		Kimley-Horn Kimley-Horn and Associates, Inc. (© 2021 KIMLEY-HORN AND ASSOCIATES, INC. 11400 Commerce Park Drive, Suite 400 Reston Virginia 20191 Phone: 703–674–1300 Fax: 703–674–1350
		Seal MICHAEL R. ALBRIGHT D Lic. No. 46643 10/28/2021 NAL
		Approvals Date Design Team Engineer Supervisor
		Construction Management Supervisor
		Water, Sewer, Streets Bureau Chief Transportation Director
		Project Manager
		Revisions Date
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OVERALL PLANT TABLE

KEY	QTY.	BOTANICAL / COMMON NAME SIZE		ROOT	COMMENTS
		CANOPY TREES			
PA	1	<i>Platanus x acerifolia</i> London Planetree	3" cal.	B&B	Uniform branching pattern
QB	4	<i>Quercus bicolor</i> Swamp White Oak	3" cal.	B&B	Uniform branching pattern
QA	5	<i>Quercus palustris</i> Pin Oak	3" cal.	B&B	Uniform branching pattern
QP	6	<i>Quercus phellos</i> Willow Oak	3" cal.	B&B	Uniform branching pattern

EVERGREEN TREES

PV	12	<i>Pinus virginiana</i> Virginia Pine	10' min ht.	B&B	Full to ground, Dense
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SHRUBS / GRASSES

SCO	369	<i>Schizachyrium scoparium</i> Little Bluestem	1 gal.	Cont.	24" O.C., full, dense

PERENNIALS, GROUNDCOVERS, AND VINES						
RHU	313	<i>Rhus aromatica 'Gro-Low'</i> Gro-Low Sumac	18" ht. min.	Cont.	30" o.c., Full, dense	

SEGMENT A TREE CALCULATIONS								
Segment A Segment F Segment H Total								
Trees Removed	27	367	70	464				
Trees Required for Reforestation	43	288	86	417				
<u>Trees Provided</u> (Canopy, Ornamental & Evergreen)	28	120	125	273				
Delta Δ	(15)	(168)	39	(144)				

1. Overall Reforestation for Segment A is deficient by 15 Trees. Additional Trees shall be planted with

Segment's C, D, F & H to satisfy the Total Trees Required for Reforestation

2. One Shade Tree or large Evergreen Tree shall be equivalent to One Reforestation Tree 3. Three Ornamental Trees or Small Evergreen Trees shall be equivalent to One Reforestation Tree

4. The adjoining DAR project will provide 171 trees (Canopy, Ornamental & Evergreen) within the

proposed County Right-ofWay to meet the overall project goal

PLANTING SPECIFICATIONS

1. QUALITY ASSURANCE

A. Landscape planting and related work shall be performed by a firm with a minimum of five years experience specializing in this type and scale of work. B. Applicable Specifications and Standards:

- Arlington County Zoning Ordinance, American Joint Committee on Horticultural Nomenclature
- American Standard for Nursery Stock, latest edition

American Association of Nurserymen Landscape Specification Guidelines for Baltimore Washington Metropolitan Areas, latest edition, Landscape Contractors Association

- 2. SUBMITTALS: Submit the following to the Owner's Representative prior to beginning work:
- A. Copies of manufacturer's data for all materials required.
- B. Samples of required mulch material.
- C. Chemical and mechanical analysis and samples of all existing soil, topsoil, organic matter and soil mix to be used.
- D. Planting schedule showing the dates (earliest and latest) proposed for each type of plant specified, schedule each type of planting within the normal planting seasons for such work. Include requests for any proposed changes in the approved planting season and a list of proposed sources for all plant materials.
- E. List of proposed sources for all plant material. 3. DELIVERY, HANDLING, AND STORAGE
- A. Deliver packaged materials in manufacturer's unopened containers or bundles, fully identified with name, brand, type, weight, and analysis. Store packaged materials in such a manner as to prevent damage or intrusion of foreign matter.
- B. Dig balled and burlapped (B& B) plants with firm, natural balls of earth, of a diameter not less than that shown on the plant list nor less than recommended by the American Standard for Nursery Stock, and of sufficient depth to include the fibrous and feeding roots. B&B plants will not be accepted if the ball is cracked or broken before or during planting operation.
- C. Deliver trees and shrubs after preparations for planting have been completed. Do not bend, bind, or tie trees or shrubs in such a manner as to damage bark, break branches or destroy natural shape. If planting is delayed more than 6 hours after delivery, set trees and shrubs in shade, protect from weather and mechanical damage, and keep roots moist by heeling-in bare root stock and covering plant balls with soil, peat moss or other acceptable material for balled stock. Plants shall be kept well watered and shall not remain unplanted for longer than ten (10) days after delivery.
- D. Plants shall be lifted and handled from the bottom of the ball only. E. Do not remove container-grown stock from containers until planting time.
- 4. <u>DRAINAGE</u>: Before planting, determine that areas to receive plant material have adequate subdrainage.
- A. The landscape contractor is responsible for drainage tests as necessary to identify any problems prior to beginning planting operations. Upon commencement of planting operations the landscape contractor assumes responsibility for soil conditions. B. Dig planting pits to full depth and dimensions indicated on drawings.
- C. At bottom of planting pit, excavate rectangular pit 12 inches by 12 inches by 18 inches deep. Quickly pour water into pit to a depth of 6 inches (approximately 3-3 3/4 gallon). Note time required for water to be completely absorbed. Divide time noted by 6 to achieve average rate of absorption for 1 inch of water. Where rate of absorption exceeds 60 minutes per inch, notify owner immediately for directions on how to proceed. 5. PLANTING <u>DATES</u>: Planting shall be done only within the following dates except as approved by Owner.
- A. Deciduous Trees and Shrubs: March 1 to May 31 and October 15 to December 15.
- B. Evergreen Trees, Shrubs and Vines: March 1 to May 31 and September 1 to November 15.
- C. All plant material shall be guaranteed by the Contractor for a period of 1 year from the date final acceptance to be in good, healthy and flourishing condition
- 6. MATERIALS FOR PLANTING:

A. Topsoil: shall be a fertile, friable natural loam, uniform in composition, free of stones, lumps, plants and their roots, debris and other extraneous matter over 1 inch in diameter, capable of sustaining vigorous plant growth. Soil shall be harvested at a single source from the O and/or A horizons of the soil profile.

- 1) Topsoil shall have a pH range of 5.5 to 7.5.
- 2) Topsoil shall contain 1.5-5% organic matter by dry weight .
- 3) Soil Texture: sandy loam, sandy clay loam with the following particle size distribution: Less than 10%
- Gravel Silt 15-30%
- Clay 20-35%
- Chemical Levels shall be:
- Magnesium Mg100+ units Phosphorus P205 150+ units
- Potassium K20 120+ units

4) Soluble Salts/ Conductivity - Not to exceed 900 ppm/0.9 mmhos/cm (in soil); not to exceed 3000 ppm/2.5 mmhos/cm (in high organic mix)

- 5) Cation exchange capacity shall be a minimum of 8 meg/100g. B. Clay Loam to Sandy Clay Loam Soil: shall be a fertile, friable natural loam, uniform in composition, free of stones, lumps, plants and their roots, debris and other extraneous matter over 1 inch in diameter, capable of sustaining vigorous plant growth.
- 1) Soil shall have a pH range of 5.5 to 6.5.
- 2) Soil shall contain 2-5% organic content by volume.
- 3) Soil Texture: Clay loam to sandy clay loam with the following particle size distribution:
- Gravel Less than 10%
- 20-50% Sand
- Silt <35%%
- 20-40% Clay
- 4) Chemical Levels shall be:
- Magnesium Mg100+ units
- Phosphorus P205 150+ units Potassium - K20 120+ units

5) Soluble Salts/ Conductivity - Not to exceed 900 ppm/0.9 mmhos/cm (in soil); not to exceed 3000 ppm/2.5 mmhos/cm (in high organic mix)

- 6) Cation exchange capacity shall be 20-35 meg/100g.
- C. Compost: Compost shall be mature, stable, weed free, and produced by aerobic decomposition of organic matter. Compost feedstock shall be plant matter, such as high lignin forestry products or vard waste (leaves, brush and vard trimmings). 1) The product must not contain any visible refuse or other physical contaminants, substances toxic to plants, or over 5% sand, silt, clay or rock
- material by dry weight. 2) Compost shall be sampled and tested as required by the Seal of Testing Assurance Program of the United States Composting Council (USCC) and shall meet the physical requirements for compost as determined by USCC.
- 3) The product shall possess no objectionable odors. The product must meet all applicable USEPA CFR, Title 40, Part 503 Standards for Class A
- 4) The moisture level shall be such that no visible water or dust is produced when handling the material. D. Composted Pine Bark Fines: Shall be approved composted, ground pine bark having no particle with a dimension greater than 3/4 inch. No more than 10% shall be wood.
- E. Sand: Shall be quartz based sharp concrete sand, ASTM C-33 Fine Aggregate, with a Fines Modulus Index between 2.8 and 3.2.
- F. Perlite: Coarse horticultural grade expanded, volcanic perlite. Maximum density shall be 8 lb./ft3. 1) pH shall be 6.5 to 7.5.
- 2) Perlite shall be meet the Perlite Institute's Standards for Gradation for Horticultural Perlite for Coarse Perlite with no more than 70% passing through a #16 Standard Sieve.
- G. Humus: Shall be mature, stable, weed free, and produced by aerobic decomposition of organic matter. Compost feedstock shall be plant matter, such as high lignin forestry products or yard waste (leaves, brush and yard trimmings). 1) Humus shall have a pH between 6 and 7.5.
- 2) Soluble Salt Concentration shall be less than 10dS/m.
- 3) Cation exchange capacity rate shall be 100-250.
- 4) The product must not contain any visible refuse or other physical contaminants, substances toxic to plants, or over 5% sand, silt, clay or rock material by dry weight.
- 5) The product shall possess no objectionable odors. The product must meet all applicable USEPA CFR, Title 40, Part 503 Standards for Class A biosolids.
- 6) The moisture level shall be such that no visible water or dust is produced when handling the material. H. Trace Elements: Shall be commercially available slow release materials containing zinc (Zn), Molybdenum (Mo), Copper (Cu), Boron (B), and Magnesium (Mn).
- I. Fertilizer: A commercial fertilizer for ornamental trees, shrubs and ground cover with an analysis of 10% Nitrogen, 6% Phosphorus and 4% Potassium shall be used. This fertilizer shall be granular with a minimum of 50% of the total Nitrogen in organic form. 14-14-0smocote (or approved equal) shall be applied at a rate of 10 lbs. per square foot, tilled to a depth of 8 inch, shall be used for perennials.
- J. Soil Separator: Shall be rot resistant non-woven polypropylene filter fabric, water permeable, and unaffected by freezing and thawing. Acceptable products include: Mirafi 140N, Mirafi Civil Engineering Co., or Stabilenka Type T-80, American Enka Co., Enka, N.C. K. Planter Drainage Fabric: Shall be prefabricated planter drainage fabric Miradrain 9000, a composite system consisting of a Mirafi drainage fabric bonded to a three-dimensional highly impact-resistant plastic core. The core shall have the following attributes:
- 1) Compressive Strength: (ASTM D-1621), 15,000 + PSF. 2) Overlaps: Shall be capable of mechanically interlocking so as to prevent separation of the overlaps during backfill.
- 7. PLANT MATERIALS: (Refer to the PLANT LIST on the drawings for specific types and quantities of plants):
- A. Plants shall be nursery grown in accordance with good horticultural practices. Plants shall either be obtained from local nurseries and/or others, which have soil (heavy clay) and climatic conditions similar to those in the locality of the project. B. Plant material grown in sandy, well-drained soil will not be approved for this project. Plants shall be true to species and variety and unless specifically
- noted otherwise, all plants shall be of specimen quality, exceptionally heavy, symmetrical, tightly-knit plants, so trained or favored in their development and appearance as to be superior in form, number of branches, compactness and symmetry.

- appearance.
- larger plant.
- above the natural ground line for trees over 4 inches diameter.
- from branch tip to tip. 3. SOIL MIXING PROCEDURES:
- Clod size (largest dimension) % of the soil mix volume Less than 1" Unlimited 1 to 3 inches 20% 3 to 6 inches 5%
- >6 inches Less than 2% B. Source material and soil mix stockpiles shall be protected from rain by covering with filter cloth.
- INSPECTION:
- and become familiar with scope of other work required. 10. SOIL INSTALLATION - GENERAL PROCEDURES: construction. Prior to loosening of soil, Contractor must locate existing utilities and coordinate with Owner any underground electric lines, drainage pipes,
- conduits, etc.
- soil damage during installation. D. Monitor compaction during installation and loosen soils as needed if compaction exceeds 80%.
- 11. INSTALLATION OF SOIL MIX FOR LAWN AREAS ON GRADE:
- 2.00
- matter. Limit preparation to areas which will be planted promptly after preparation.
- natural settlement. Allow for sod thickness in areas to be sodded. 12. INSTALLATION OF SOIL MIX FOR TREE PITS ON GRADE
- B. Install 30-36" of Soil Mix for Tree Pit Backfill on Grade: (a)Clay content of Soil Mix shall be 10-20% of the soil mix, by volume. (b)Minimum amount of coarse to medium sand in the mix shall be 55%
- (c)Minimum infiltration rate at 80-85% compaction shall be 1-3 inches per hour. A. Composted pine bark fines shall not exceed 10% of the total soil mix by volume.
- B. Till 4" of compost into the top 6" of the installed Soil Mix for Tree Pit Backfill on Grade. 13. INSTALLATION OF SOIL MIX FOR MULCHED SHRUB AND PERENNIAL BEDS
- B. Install 14" of Soil Mix for Mulched Shrub and Perennial Beds on Grade: 1) Shall consist of clay loam to sandy clay loam soil, sand, and composted pine bark fines at a rate of 5:5:1 to 10:5:1.5 to achieve the following: (a)Clay content of Soil Mix shall be 10-20% of the soil mix, by volume. (b)Minimum amount of coarse to medium sand in the mix shall be 55%
- (c)Minimum infiltration rate at 80-85% compaction shall be 1-3 inches per hour. 2) Composted pine bark fines shall not exceed 10% of the total soil mix by volume. C. Till 4" of compost into the top 6" of the installed Soil Mix for Tree Pit Backfill on Grade.
- 14. EROSION CONTROL MATERIAL AND PLANTING ON STEEP SLOPES: shall be laid evenly, smoothly and in contact with the soil throughout.
- inspection
- 15. GENERAL PLANT INSTALLATION:
- A. Excavation: Excavate all tree pits and planting areas to the width and depth shown in the planting details.
- shown on planting details. Remove all tags, labels, strings, etc. from all plants.
- 16. PERMANENT SEEDING OR SODDING FOR GRASS AREAS Maryland or Virginia Department of Agriculture.
- B. Refer to the Virginia Erosion and Sediment Control Handbook, for guidelines, specifications and installation techniques of seed and sod.

C. Plants shall be sound, healthy and vigorous, well branched and densely foliated when in leaf, free of disease, insect pests, eggs or larvae and shall have healthy, well-developed root systems. They shall be free from physical damage or any conditions that would prevent thriving health and the desired

D. Trees, which have a damaged or crooked leader, or multiple leaders, unless specified in the plant list, will be rejected. Trees with abrasion of the bark, sun scald, disfiguring knots, or pruning cuts more than 1 1/4 inch diameter which have not completely callused, will be rejected.

E. Plants shall conform to measurements specified in the plant schedules except that plants larger than specified may be used if acceptable to the Landscape Architect or owner. Use of such plants shall not increase the contract price. If larger plants are accepted, the root ball shall be sized for the

F. Caliper Measurement: Shall be taken at a point on the trunk 6 inches above natural ground line for trees up to 4 inches diameter, and at a point 12 inches G. Plants shall be measured when branches are in the normal position. Height and spread dimensions specified refer to the main body of the plant and not

A. Topsoil used in sand/soil mixes shall be screened or shredded prior to mixing in sands. Maximum clod inclusion for soil mixes shall not exceed:

A. Examine the areas and conditions where soil mix is to be installed and notify the Architect of conditions detrimental to the proper and timely completion of the work. Do not proceed with the work until unsatisfactory conditions are corrected to permit proper installation of the work. B. Cooperate with other Contractors and trades working in and adjacent to other work areas. Examine drawings which show development of entire project

A. If subgrade soil compaction exceeds 80%, existing soil shall be ripped to a depth of 12 inch to alleviate compaction which has taken place during

B. Prepare the subgrade by roughening the top 3" of the subsoil by dragging the teeth of a backhoe bucket across the surface.

C. Begin soil installation as soon as subsoil is prepared. Use low impact equipment with track belts, large tires, or low tire pressure to lower compaction and

E. Install specified soil in 12"-18" thick lifts. Compact each lift sufficiently to reduce settling but not enough to prevent the movement of water and feeder roots through the soil. The soils in each lift should feel firm to the foot in all areas and make only slight heel prints.

A. Soil Mix for Lawns on Grade: shall consist of 10% compost and 90% topsoil, by volume. These materials must meet specifications described in Section

B. Loosen subgrade lawn areas to a minimum of 3". Remove stones more than 1-1/2" in any dimension and sticks, roots, rubbish, and other extraneous C. Spread soil mix for lawn areas on grade to a minimum depth of 8" as required to meet grade and elevations shown on drawings, after lightly rolling and

A. Confirm that native subsoil drains at a rate of at least 1/2" per hour. If drainage is less than 1/2" per hour, provide subsurface drainage lines.

1) Shall consist of clay loam to sandy clay loam soil, sand, and composted pine bark fines at a rate of 5:5:1 to 10:5:1.5 to achieve the following:

A. Confirm that native subsoil drains at a rate of at least 1/2" per hour. If drainage is less than 1/2" per hour, provide subsurface drainage lines.

A. Material meeting the requirements of the specifications shall be installed and maintained on the designated areas as shown and specified. The areas to be covered shall be prepared and fertilized as specified before the erosion material is placed. Immediately prior to the planting operations, the material

B. Lay erosion control materials with one inch nominal openings in accordance with manufacturer's instructions. Unroll in direction of water flow. Overlap sheets by at least 6 inches. Where strips are to be spliced lengthwise, overlap strips by 8 inches. Upgrade section shall be on top of all splices. C. The Contractor shall maintain and protect the erosion control material until the final inspection. Maintenance shall consist of repairs made necessary by erosion, wind or any other cause. Following the restoration of damaged areas under plant and turf guarantee and establishment requirements for applicable underlying items; the erosion control material shall be repaired or replaced to meet the original requirements and maintained until the final

B. Center plant in pit and orient for the best visual effect. Set plants plumb and hold rigidly in position until soil has been tamped firmly around root ball. C. Mulch within 48 hours after planting and after applying the pre-emergent herbicide, except ground cover areas (which shall have organic material placed before planting) with a 2" layer of mulch immediately after planting. All bed lines shall be cut with a smooth consistent edge to a minimum depth of 3 inches. Keep mulch out of the crowns of shrubs and off buildings, sidewalks, light standards, and other structures.

D. All planting areas to conform to specified grades after full settlement has occurred and mulch has been applied. Provide saucers around tree pits as

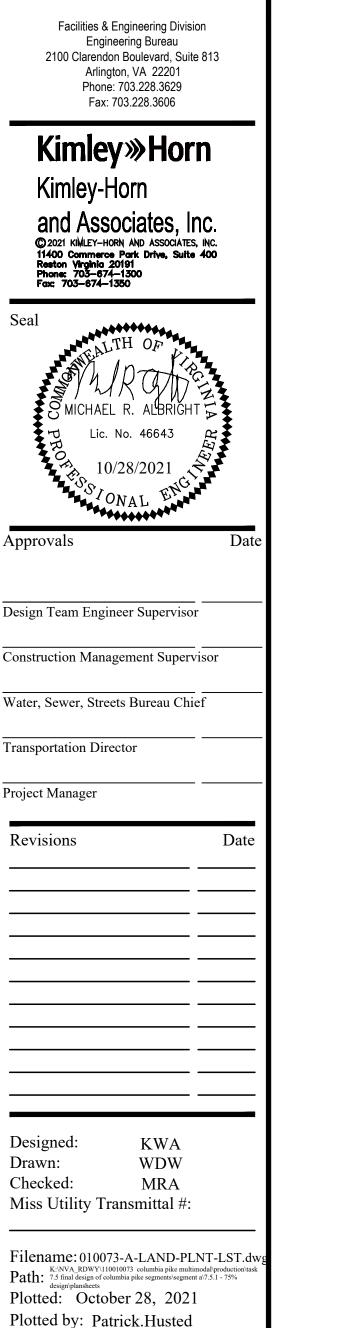
A. Lawn Seed or Sod varieties shall be an improved variety turf-type tall fescue blend. The landscape contractor shall select from varieties approved by the

C. Maintenance shall begin immediately after each plant and lawn area is installed and shall continue until 90 days after final acceptance of the last section.

ARLINGTON COUNTY, VIRGINIA DEPARTMENT OF ENVIRONMENTAL SERVICES

PLANT LIST AND PLANTING SPECIFICATIONS COLUMBIA PIKE - ROUTE 244 COLUMBIA PIKE - MULTIMODAL STREET IMPROVEMENTS SEGMENT A S. OAK ST. TO S. ORME ST.

SCALE: HOR. N/A VERT. N/A SHEET A14.7 of A14.11



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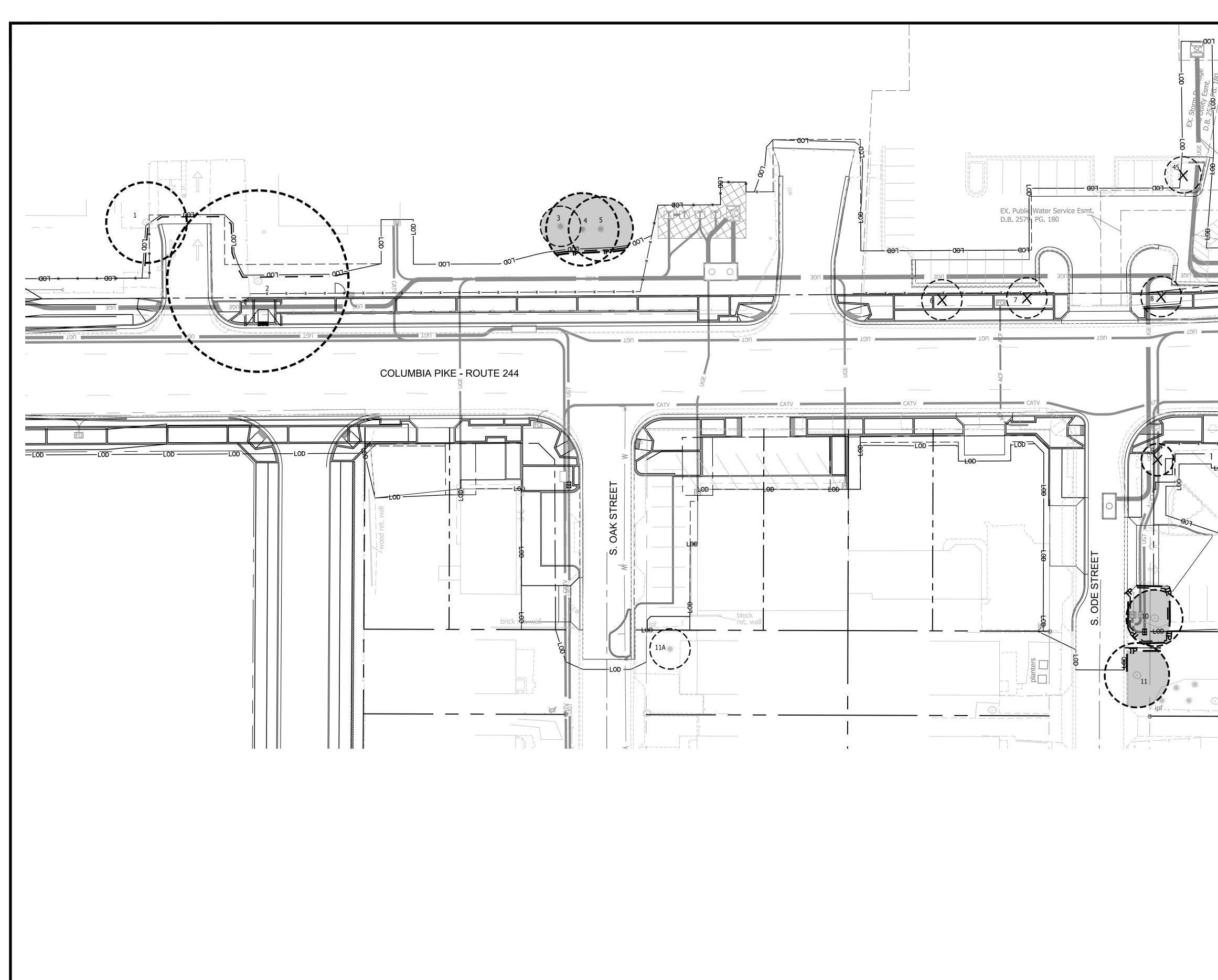
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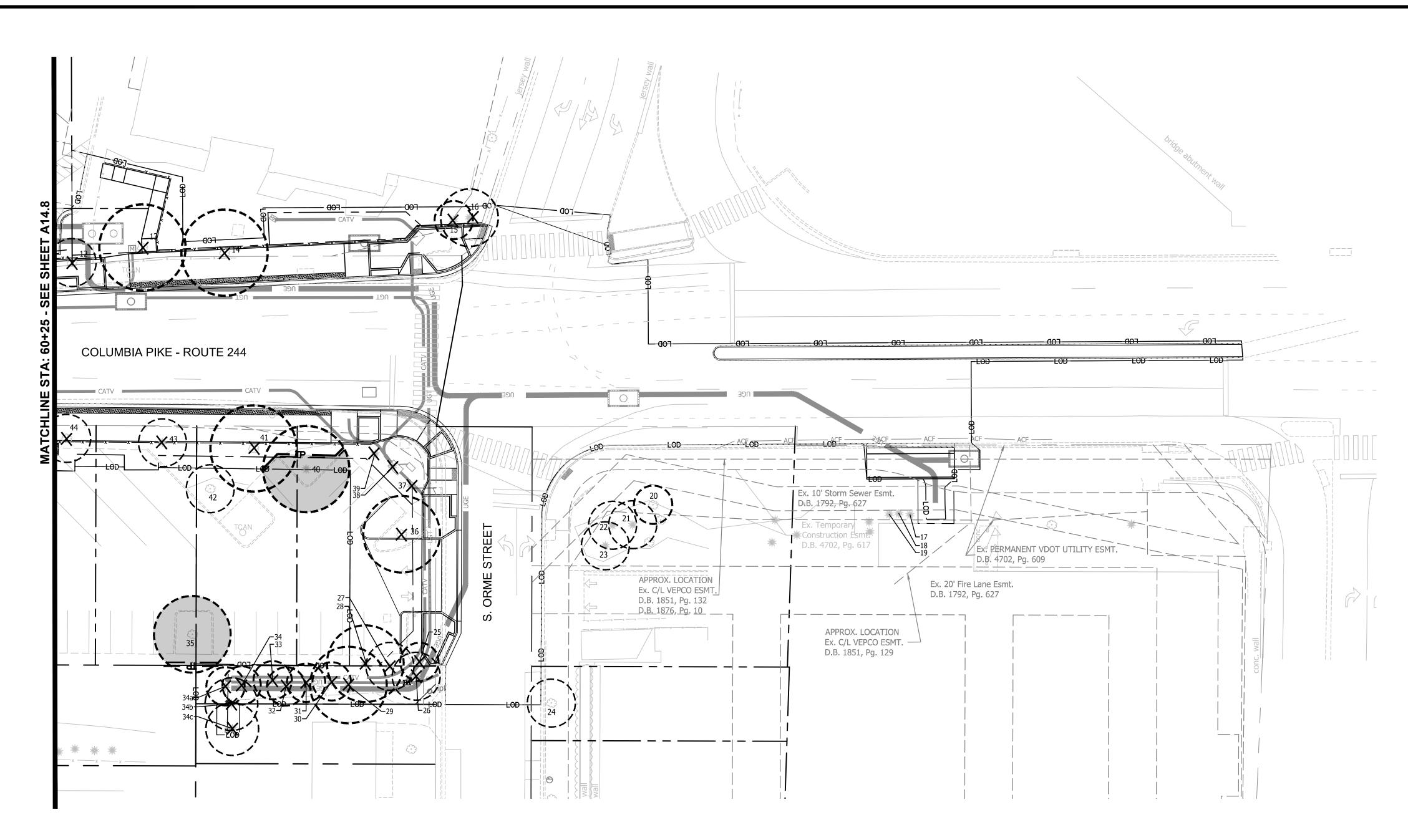
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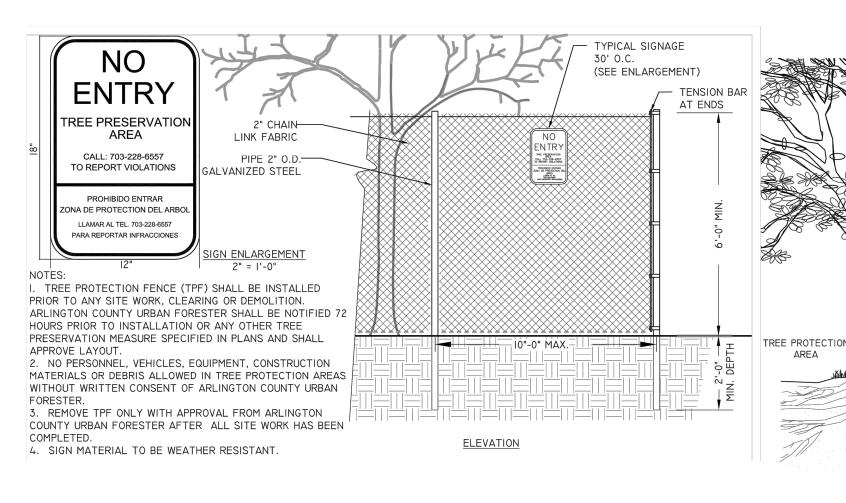
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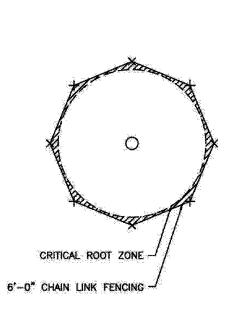


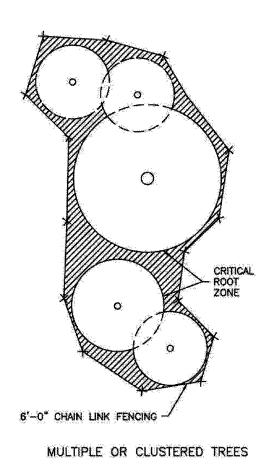
TREE PROTECTIO	ON LEGEND	
٢	EXISITING TREE	ARLINGTON
×	TREE TO BE REMOVED	VIRGI NIA
()	CRITICAL ROOT ZONE	DEPARTMENT OF ENVIRONMENTAL SERVICES
TP	TREE PROTECTION FENCE	Facilities & Engineering Division Engineering Bureau 2100 Clarendon Boulevard, Suite 813 Arlington, VA 22201 Phone: 703.228.3629 Fax: 703.228.3606
·	ROOT PRUNING LINE	Kimley»Horn
LOD	LIMITS OF DISTURBANCE	Kimley-Horn
<u>TREE PROTECT</u> 1. FOR ROOT	<u>ION NOTES:</u> PRUNING INFORMATION,	and Associates, Inc. © 2021 KIMLEY-HORN AND ASSOCIATES, INC. 11400 Commerce Park Drive, Suite 400 Reaton Virginia 20191 Phone: 703-674-1300
	2 SHEET A14.10	Phone: 703-674-1300 Fax: 703-674-1350 Seal
		MICHAEL R. ALBRIGHT D Lic. No. 46643 10/28/2021 NAL ENGLASSIONAL Approvals Date
		Design Team Engineer Supervisor
		Construction Management Supervisor
		Water, Sewer, Streets Bureau Chief
		Transportation Director
		Project Manager
		Revisions Date
ľ	GRAPHIC SCALE IN FEET 0 12.5 25 50	Designed: KWA Drawn: WDW Checked: MRA Miss Utility Transmittal #:
		Filename: 010073-A-LAND-TP.dwg K:NVA_RDWY\110010073 columbia pike multimodal\production\task Path: 7.5 final design of columbia pike segments\segment a\7.5.1 - 75% design\plansheets Plotted: October 28, 2021 Plotted by: Patrick.Husted
DI	ARLINGTON COUNTY, EPARTMENT OF ENVIRONM	
COLUMBIA	TREE PROTECTION COLUMBIA PIKE - R A PIKE - MULTIMODAL S SEGMENT A	OUTE 244 TREET IMPROVEMENTS
SCALE: HO	STA. 60+25 TO STA. DR. 1" = 25' VERT. 1" = 5' SHEET	
	ARI	INGTON DEPARTMENT OF

LUIS ARAYA BUREAU CHIEF, DES - DEVELOPMENT SERVICES



1 6' CHAIN LINK TREE PROTECTION FENCE





SINGLE OR SPECIMEN TREE

3 TREE PROTECTION FENCE, PLAN

TREE PROTECTION FENCING NOTES

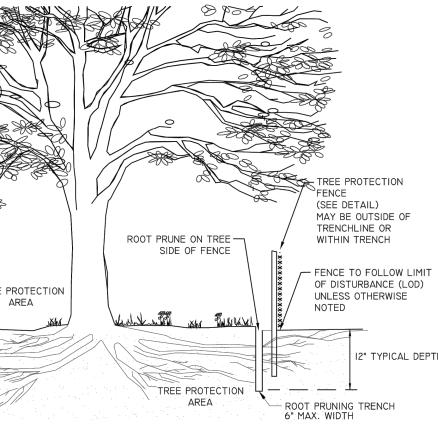
1. Tree protection shall be a minimum of 6'-0" high chain link fence mounted on vertical pipes driven 2'-0" into the ground, at approximately 8'-0" to 10-0" (max.) on center, with no gates.

In areas where super silt fence (SSF) and the tree protection fence run parallel, SSF may be utilized for tree protection purposes upon approval by the County's Urban Forester.

2. Tree protection fencing shall be erected at the critical root zone or beyond prior to start of any clearing, grading or other construction activity. Signs stating "No Entry, Tree Protection Area, Call 703-228-6557 to report violations" are to be posted in both English and Spanish. See Reference Detail II.A.5. Tree protection shall not be removed until completion of all construction activity.

3. For questions related to tree protection or for field inspection of tree protection, contact the County's Urban Forester at 703-228-6557.

NOTE: URBAN FORESTER TO BE CALLED AT 703-228-1863, 72 HOURS BEFORE CONSTRUCTION, TO INSPECT TREE PROTECTION.



NOTES

I. ROOT PRUNING SHALL BE DONE WITH A TRENCHER OR VIBRATORY PLOW TO A DEPTH OF 12". ROOTS OVER I.5" IN DIAMETER SHALL HAVE A CLEAN CUT MADE BY A CLEAN SAW ON THE SURFACE OF THE ROOT, WHICH IS STILL ATTACHED TO THE TREE. DO NOT BREAK OR CHOP. DO NOT PAINT THE CUT ROOT END. IF EXCAVATION IS FOR INSTALLATION OF UNDERGROUND UTILITIES, LEAVE THE ROOT INTACT AND THREAD THE LINES UNDERNEATH.

2. ROOT PRUNING SHALL TAKE PLACE PRIOR TO ANY CLEARING AND GRADING. EXACT LOCATION OF TREE PROTECTION AREAS SHALL BE STAKED OR FLAGGED PRIOR TO TRENCHING AND SHALL BE APPROVED BY ARLINGTON COUNTY URBAN FORESTER.

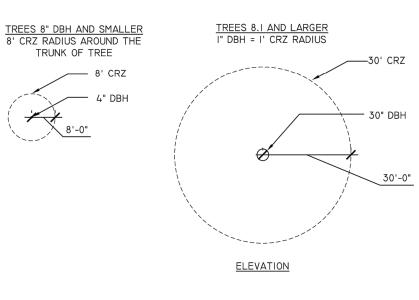
3. ROOT PRUNING SHALL BE CONDUCTED WITH THE SUPERVISION OF AN ISA CERTIFIED ARBORIST.

TRENCHLINE OR
WITHIN TRENCH4. BACKFILL THE ROOT-PRUNING TRENCH WITH
APPROVED LOOSE TOPSOIL MIX AND TOP WITH 3-4" BARK
MULCH AND MARK LOCATION FOR FUTURE REFERENCE.
SILT FENCE MAY BE INSTALLED IN TRENCH PRIOR TO
BACKFILLING AS LONG AS THE TRENCH IS NOT OPEN FOR
LONGER THAN 48 HOURS WITHOUT WATERING.Image: Constant of the state of the state

MORE THAN THE TOP I INCH OF SOIL IS FROZEN. ROOT PRUNING SHALL NOT BE UNDERTAKEN WHEN THE SOIL IS WET AND CONDITIONS ARE MUDDY.

2" TYPICAL DEPTH 6. THE ARLINGTON COUNTY URBAN FORESTER SHALL BE NOTIFIED 72 HOURS PRIOR TO TRENCHING AND WHEN ALL ROOT PRUNING AND TREE PROTECTION FENCE INSTALLATION IS COMPLETE.

ROOT PRUNING



NOTES:

I. GRAPHICALLY, THE CRITICAL ROOT ZONE (CRZ) IS REPRESENTED AS A CIRCULAR REGION MEASURED OUTWARD FROM A TREE TRUNK REPRESENTING THE AREA OF ROOTS THAT MUST BE MAINTAINED OR PROTECTED FOR THE TREE'S SURVIVAL.

2. THE CRZ OF A TREE IS THE ZONE IN WHICH THE MAJORITY OF THE ROOTS LAY. 95% OF THE ROOTS OF MOST TREES WILL BE FOUND IN THE UPPER 12-18" OF THE SOIL. MOST OF THE ROOTS THAT SUPPLY THE NUTRIENTS AND WATER TO THE TREE ARE FOUND JUST BELOW THE SOIL SURFACE. THE TOTAL AMOUNT OF A TREE'S ROOTS ARE GENERALLY PROPORTIONAL TO THE VOLUME OF THE TREE'S CANOPY. THEREFORE, IF THE ROOTS ONLY PENETRATE A THIN LAYER OF SOIL, THEN THE ROOTS MUST SPREAD FAR FROM THE TREE, BEYOND THE EXTENSION OF THE CANOPY.

3. PLOT ACCURATE TRUNK LOCATIONS OF ALL TREES GREATER THAN 3" DIAMETER AT BREAST HEIGHT (DBH) AND/OR TREE STANDS WITHIN DEVELOPMENT AREAS ON ALL PLANS FOR THE PROJECT AND DELINEATE THEIR ESTIMATED CRITICAL ROOT ZONE.

4. PLOT ACCURATE TRUNK LOCATIONS OF OFFSITE TREES WHICH WILL HAVE THEIR CRZ AFFECTED BY DEVELOPMENT AND DELINEATE THEIR ESTIMATED CRITICAL ROOT ZONE.



SIGN LOCATED ON EACH SIDE OF FENCING 4'W . x 6' H. PLYWOOD (TYP) PROVIDE VIEWING WINDOW COVERED WITH PLASTIC WEB

TES: TREE PROTECTION FENCE (TPF) SHALL BE INSTALLED PRIOR TO ANY SITE WORK, CLEARING OR DEMOLITION. ARLINGTON COUNTY URBAN FORESTER SHALL BE NOTIFIED 72 HOURS PRIOR TO INSTALLATION.

- TPF SHALL BE MAINTAINED THROUGHOUT CONSTRUCTION. SIGN MATERIAL TO BE WEATHER RESISTANT.
- 4. TREE PROTECTION BARRIERS MUST BE CONSTRUCTED WITH A SOLID WOOD FRAME CLAD WITH PLYWOOD OR APPROVED EQUIVALENT. SECURE BOARDS TO ENSURE PROTECTION IS NOT MOVED DURING PROJECT.
- 5. HEIGHT OF BOARDING MAY BE LESS THAN 6 FEET TO ACCOMMODATE ANY BRANCHES THAT MAY BE LOWER. HEIGHT OF LESS THAN 6' SHALL BE APPROVED
- BY ARLINGTON COUNTY URBAN FORESTER. 6. REMOVE TPF ONLY WITH APPROVAL FROM ARLINGTON COUNTY URBAN FORESTER
- AFTER ALL SITE WORK HAS BEEN COMPLETED. 7. PROVIDE 12"(WIDTH) X4"(HEIGHT) CUT-OUTS ALONG PANELS FACING PAVED SURFACES SUCH AS SIDEWALKS, TWO CUT-OUTS PER FENCE PANEL.

4)-

2

DETERMINING CRITICAL ROOT ZONE

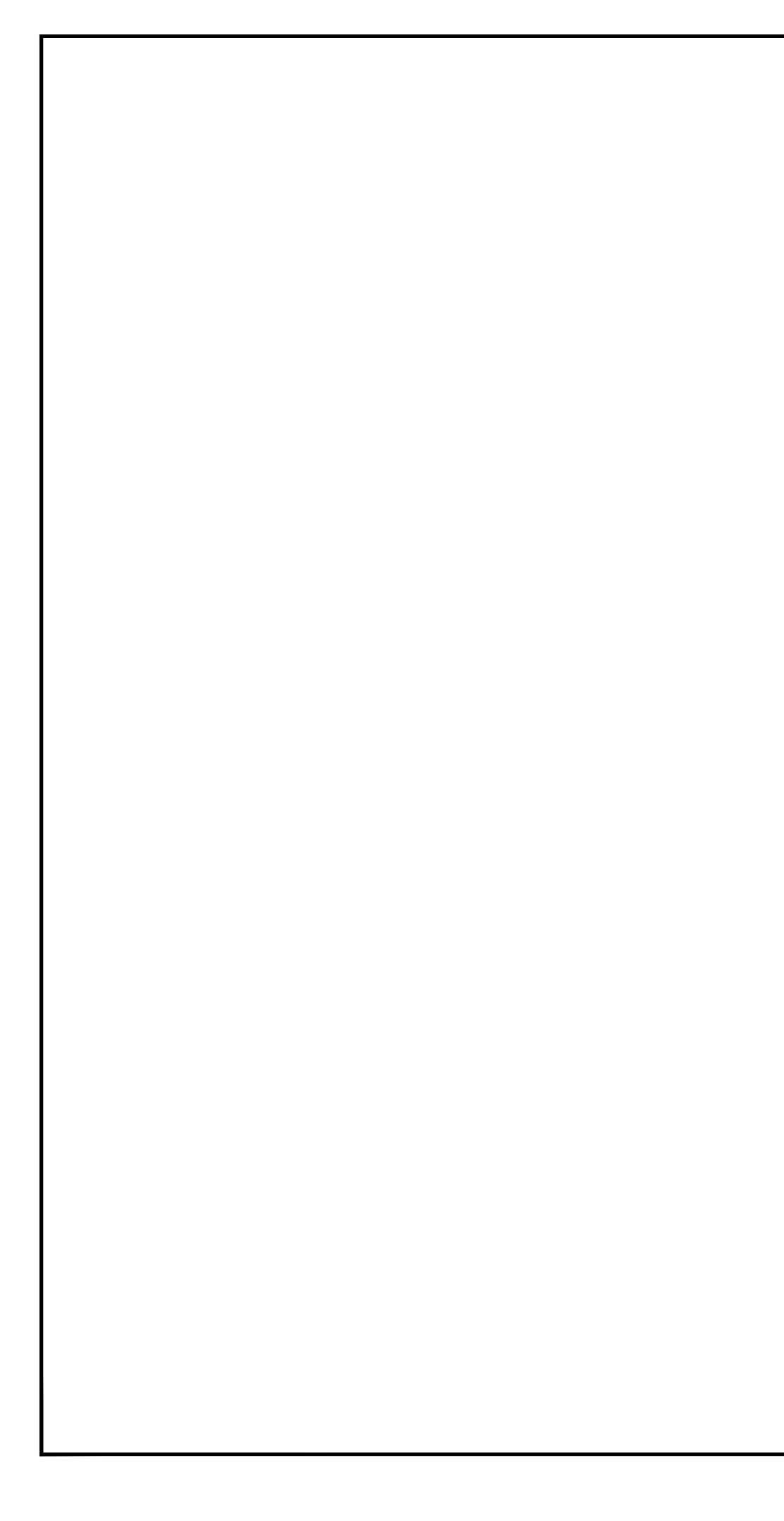


	A R L I NG TO N VIRGI NIA
	DEPARTMENT OF ENVIRONMENTAL SERVICES Facilities & Engineering Division
	Engineering Bureau 2100 Clarendon Boulevard, Suite 813 Arlington, VA 22201 Phone: 703.228.3629 Fax: 703.228.3606
	Kimley-Horn Kimley-Horn and Associates, Inc. © 2021 KIMLEY-HORN AND ASSOCIATES, INC. 11400 Commerce Park Drive, Suite 400 Reston Virginia 20191 Phone: 703–674–1300 Fax: 703–674–1350
	Seal MICHAEL R. ALBRIGHT D Lic. No. 46643 10/28/2021 NONAL
EAR A SAR	Approvals Date Design Team Engineer Supervisor
	Construction Management Supervisor
	Water, Sewer, Streets Bureau Chief
	Transportation Director Project Manager
	Revisions Date
RSONNEL, VEHICLES, EQUIPMENT,	
RUCTION MATERIALS OR DEBRIS ALLOWED E PROTECTION AREAS WITHOUT WRITTEN IT OF ARLINGTON COUNTY URBAN "ER.	
<u>DR</u> TREE PITS	Designed: KWA Drawn: WDW Checked: MRA Miss Utility Transmittal #:
	Filename: 010073-A-LAND-TP-DTL.dwg R:NVA_RDWY/10010073 columbia pike multimodal/productiontask Path: 7.5 final design of columbia pike segments/segment a/7.5.1 - 75% design/plansheets Plotted: October 28, 2021 Plotted by: Patrick.Husted
ARLINGTON COUN DEPARTMENT OF ENVIRO	
TREE PROTECTIC COLUMBIA PIKE COLUMBIA PIKE - MULTIMODA SEGMEN S. OAK ST. TO S.	- ROUTE 244 L STREET IMPROVEMENTS T A
	EET: A14.10 of A14.11

BUREAU CHIEF, DES - DEVELOPMEN

T SERVICE

ARLINGTON DEPARTMENT OF VIRGINIA DEPARTMENT OF ENVIRONMENTAL SERVICES



<u>To Be</u> Removed	<u>#</u>	<u>Survey Dia</u>	<u>DBH</u>	<u>Condition</u>	<u>Species</u>	Common name
tomovou	1	20	20	78	Quercus rubra	Red Oak
	2	30	30	59	Ulmus americana	American Elm
	3	10	10	81	x Cuprocyparis leylandii	Leyland Cypress
	4	18	18	81	x Cuprocyparis leylandii	Leyland Cypress
	5	16	16	81	x Cuprocyparis leylandii	Levland Cypress
Х	6	10	9	75	Ulmus parvifolia	Chinese Elm
Х	7	10	9	84	Ulmus parvifolia	Chinese Elm
Х	8	10	9	78	Ulmus parvifolia	Chinese Elm
Х	9	8	6	75	Zelkova serrata	Zelkova
	10	14	13	78	Zelkova serrata	Zelkova
	11	16	15	72	Acer platanoides	Norway Maple
	11A	10	8	91	Pseudotsuga menziesii	Douglas Fir
Х	12	10	10	78	Ulmus parvifolia	Chinese Elm
X	13	18	15	84	Ulmus parvifolia	Chinese Elm
X	14	18	18	81	Ulmus parvifolia	Chinese Elm
X	15	8	10	66	x Cuprocyparis leylandii	Leyland Cypress
X	16	12	11	66	x Cuprocyparis leylandii	Leyland Cypress
~	10	4		00	x ouprooypans loylandii	Shrub
	18	4				Shrub
	19	8				Shrub
	20	8	8	63	Prunus 'Kwanzan'	Kwanzan Cherry
	20	10	10	69	x Cuprocyparis leylandii	Leyland Cypress
	22	10	10	84	x Cuprocyparis leylandii	Leyland Cypress
	22	10	10	84	x Cuprocyparis leylandii	Leyland Cypress
	23	10	10	75	Quercus phellos	Willow Oak
х	24	10	4	75	Pinus virginiana	Virginia Pine
X	26	4	10	75	Pinus virginiana	Virginia Pine
x	20	10	9	75	Pinus virginiana Pinus virginiana	Virginia Pine
x	27	16	14	78	Juniperus virginiana	Red Cedar
x	28	16	14	78	Juniperus virginiana	Red Cedar Red Cedar
X	30	8	12	78	Juniperus virginiana	Red Cedar
x	30	8	13	78	Juniperus virginiana	Red Cedar
X	32	8		78		Red Cedar Red Cedar
X	32	8	<u>7</u> 10	78	Juniperus virginiana	Red Cedar Red Cedar
	33	-	7	84	Juniperus virginiana	
X X		8	-		Pinus strobus	White Pine
	34a	8	8	84	Pinus strobus	White Pine
X	34b	8	11	75	Pinus strobus	White Pine
Х	<u>34c</u>	8	11	84	Pinus strobus	White Pine
V	35	16	15	81	Zelkova serrata	Zelkova
Х	36	16	14	75	Zelkova serrata	Zelkova
	37	12				N.A.
	38	14				N.A.
	39	14				N.A.
	40	18	16	84	Quercus rubra	Red Oak
Х	41	8	16	84	Quercus rubra	Red Oak
	42	10	10	75	Zelkova serrata	Zelkova
Х	43		12	75	Zelkova serrata	Zelkova
Х	44	10	11	78	Zelkova serrata	Zelkova
Х	45		9	78	Zelkova serrata	Zelkova

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LUIS ARAYA BUREAU CHIEF, DES - DEVELOPMENT SERVICES

	SUMMARY OF LIGHT POLE DETAILS									
LIGHT POLE LABEL	POLE TYPE	POLE FOUNDATION	STATION	OFFSET	DIRECTION					
	FULL TIPE	FOLE FOUNDATION		(FEET)	(NORTH/SOU					
LP01	PROPOSED DOUBLE CARLYLE LED ON NEW LIGHT POLE	SHALLOW DEPTH	63+17.20	32.60	SOUTH					
LP02	PROPOSED DOUBLE CARLYLE LED ON NEW LIGHT POLE	SHALLOW DEPTH	62+17.31	28.40	SOUTH					
LP03	PROPOSED DOUBLE CARLYLE LED ON NEW LIGHT POLE	STANDARD DEPTH	61+49.50	26.00	SOUTH					
LP04	PROPOSED DOUBLE CARLYLE LED ON NEW LIGHT POLE	SHALLOW DEPTH	60+51.60	26.50	SOUTH					
LP05	PROPOSED DOUBLE CARLYLE LED ON NEW LIGHT POLE	SHALLOW DEPTH	59+32.44	27.50	SOUTH					
LP06	PROPOSED DOUBLE CARLYLE LED ON NEW LIGHT POLE	SHALLOW DEPTH	58+68.50	26.50	SOUTH					
LP07	PROPOSED DOUBLE CARLYLE LED ON NEW LIGHT POLE	SHALLOW DEPTH	57+78.30	26.50	SOUTH					
LP08	PROPOSED DOUBLE CARLYLE LED ON NEW LIGHT POLE	STANDARD DEPTH	58+20.22	26.00	NORTH					
LP09	PROPOSED DOUBLE CARLYLE LED ON NEW LIGHT POLE	STANDARD DEPTH	59+06.76	26.00	NORTH					
LP10	PROPOSED DOUBLE CARLYLE LED ON NEW LIGHT POLE	STANDARD DEPTH	60+14.06	26.00	NORTH					
LP11	PROPOSED DOUBLE CARLYLE LED ON NEW LIGHT POLE	STANDARD DEPTH	60+96.20	26.00	NORTH					
LP12	PROPOSED DOUBLE CARLYLE LED ON NEW LIGHT POLE	STANDARD DEPTH	69+51.88	26.25	NORTH					
LP13	PROPOSED DOUBLE CARLYLE LED ON NEW LIGHT POLE	STANDARD DEPTH	63+07.91	28.00	NORTH					

NOTES:

1. REFERENCE POINT OF LIGHT POLES IS THE CENTER OF THE POLE.

2. FURNISH AND INSTALL 24" DIAMETER AND 4' DEEP FOUNDATION FOR CARLYLE POLE.

CARLYLE POLES SHALL BE BLACK IN COLOR AND 16' TALL. CONTRACTOR SHALL USE BLACK COLOR ATTACHMENTS INCLUDING BLACK COLOR ARM. 3.

CONTRACTOR SHALL USE UNION METAL CORP. DESIGN NUMBER N1059-Y1 ORNAMENTAL CAST ALUMINUM BLACK COLOR TWIN LUMINAIRE ARM. CONTRACTOR SHALL USE RELUME LED UA2 LTL NUMBER 17612. ALL NEW CARLYLE LIGHT POLES SHALL BE UNION METAL CORP. DESIGN NUMBER P874-730-B134-Y3. 4. 5.

Descr

Arlington County Stan

THE COUNTY WILL USE WIRELESS CONTROL FEATURE OF THE LIGHTING SYSTEM TO MAINTAIN PROPER ILLUMINANCE LEVEL AND UNIFORMITY RATIOS ON THE CORRIDOR. THE WIRELESS CONTROL SYSTEM PROVIDES A CAPABILITY TO THE COUNTY TO ADJUST THE LIGHTING LEVEL OF EACH INDIVIDUAL STREETLIGHT.

LUMINAIRE SCHEDULE							
cription	Standard # (County Only)	Wattage	ССТ	Distribution Type	Pole Height	Color of Poles	LLF
indard LED Carlyle Light	14110-01	69	4000K	Type V	16'	Black	0.90

Facility	Targ	et 🛛			Requirements		
Facility –	Avg	Min	Avg	Min	Avg/Min	Met?	
Crosswalk	1.4	0.3	2.8	2.3	1.2	Yes	
CW_Oak_N			1.6	1.2	1.3	Yes	
CW_Ode_N			2.2	2.0	1.1	Yes	
CW_Orme_E			3.3	2.4	1.4	Yes	
CW_Orme_N			3.9	3.7	1.1	Yes	
CW_Orme_S			2.8	2.4	1.2	Yes	
Intersection	1.7	0.2	2.4	1.5	1.7	Yes	
Int_Oak			2.0	1.4	1.4	Yes	
Int_Ode			2.2	1.2	1.8	Yes	
Int_Orme			3.1	1.8	1.7	Yes	
Roadway	1.4	0.2	1.9	0.8	2.8	Yes	
RW_East_of_Oak			1.7	0.4	4.3	Yes	
RW_Oak_to_Ode			1.8	1.0	1.8	Yes	
RW_Ode_to_Orme			1.7	0.5	3.4	Yes	
RW_Ome_to_Ramp			2.2	1.2	1.8	Yes	
Sidewalk	0.8	0.2	2.1	1.1	2.8	Yes	
SW_1			1.7	0.7	2.4	Yes	
SW_2			2.0	0.4	5.0	Yes	
SW_3			1.7	0.8	2.1	Yes	
SW_4			1.3	0.3	4.3	Yes	
SW_5			3.1	1.8	1.7	Yes	
SW_6			2.9	2.7	1.1	Yes	

		1		A R L I N G T O VIRGI NIA	N
				DEPARTMENT OF ENVIRONMENTAL SERVIC	ES
TH)	NUMBER CBP1501S				_0
				Facilities & Engineering Division Engineering Bureau 2100 Closeador Boulouard, Suite 212	5
	CBP1411S CBP1409S			2100 Clarendon Boulevard, Suite 813 Arlington, VA 22201 Phone: 703.228.3629	5
	CBP 14093 CBP 1407S			Fax: 703.228.3606	
	CBP 1407S CBP 1407S			Kimley»Horn	
	CBP1403S			Kimley-Horn	
	CBP14033 CBP1401S			and Associates, Inc.	
	CBP1402S			© 2021 KIMLEY-HORN AND ASSOCIATES, INC. 11400 Commerce Park Drive, Suite 400	
	CBP1404S			Reston Virginia 20191 Phone: 703–674–1300 Fax: 703–674–1350	
	CBP1406S			Seal	
	CBP1408S			NEALTH OF	
	CBP1410S			\$ WARDANES	
	CBP1502S			SMICHAEL R. ALBRIGHT	
	001 10020			Lic. No. 46643	
				Approvals	Da
				Design Team Engineer Supervisor	
				Construction Management Supervisor	r
				Water, Sewer, Streets Bureau Chief	
				Transportation Director	
				Project Manager	
				Revisions	Date
					Datt
				Designed: DL Drawn: BAA Checked: MRA Miss Utility Transmittal #:	
				Filename: 010073-SEG_0-0.dwg K:NVA.RDWY110010073 columbia pike multimodal/p Path: 7.5 find design of columbia pike segments/segment a/7.5.1 design/plansheets Plotted: October 28, 2021 Plotted by: Patrick.Husted	production\ta 1 - 75%
		ARLINGTON CO	UNTY, VI	RGINIA	
	DEPA	ARTMENT OF ENVI	RONMEN	TAL SERVICES	
	COLUMBIA I		KE - ROU DAL STR ENT A	JTE 244 REET IMPROVEMENT	ГS
	SCALE: HO	DR. N/A VERT. N/A	SHEET:	A15.1 of A15.7	



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